



GLIMPSES *of our* NATIONAL PARKS

CONTENTS

	Page		Page
I.—The National Parks	3	VIII.—The Glacier National Park. . .	34
II.—The Yellowstone National Park . .	9	IX.—The Rocky Mountain National	
III.—The Yosemite National Park . .	16	Park	37
IV.—The Sequoia National Park . . .	20	X.—The Grand Canyon (National	
V.—Mount Rainier National Park . . .	23	monument administered by	
VI.—Crater Lake National Park . . .	27	Department of Agriculture) . .	42
VII.—The Mesa Verde National Park .	30	XI.—The Hot Springs Reservation . .	46

THE NATIONAL PARKS AT A GLANCE

Chronologically in the order of their creation

[Number, 14; Total Area, 7,290 Square Miles]

NATIONAL PARKS in order of creation	LOCATION	AREA in square miles	DISTINCTIVE CHARACTERISTICS
Hot Springs..... 1832	Middle Arkansas	1½	46 hot springs possessing curative properties—Many hotels and boarding houses—20 bathhouses under public control.
Yellowstone..... 1872	North- western Wyoming	3,348	More geysers than in all rest of world together—Boiling springs—Mud volcanoes—Petrified forests—Grand Canyon of the Yellowstone, remarkable for gorgeous coloring—Large lakes—Many large streams and waterfalls—Vast wilderness inhabited by deer, elk, bison, moose, antelope, bear, mountain sheep, beaver, etc., constituting greatest wild bird and animal preserve in world—Altitude 6,000 to 11,000 feet—Exceptional trout fishing.
Yosemite..... 1890	Middle eastern California	1,125	Valley of world-famed beauty—Lofty cliffs—Romantic vistas—Many waterfalls of extraordinary height—3 groves of big trees—High Sierra—Large areas of snowy peaks—Waterwheel falls—Good trout fishing.
Sequoia..... 1890	Middle eastern California	237	The Big Tree national park—12,000 sequoia trees over 10 feet in diameter, some 25 to 36 feet in diameter—Towering mountain ranges—Startling precipices—Fine trout fishing.
General Grant.... 1890	Middle eastern California	4	Created to preserve the celebrated General Grant Tree, 35 feet in diameter—6 miles from Sequoia National Park and under same management.
Mount Rainier.... 1899	West central Washington	324	Largest accessible single peak glacier system—28 glaciers, some of large size—Forty-eight square miles of glacier, fifty to five-hundred feet thick—Wonderful sub-alpine wild flower fields.
Crater Lake..... 1902	South- western Oregon	249	Lake of extraordinary blue in crater of extinct volcano, no inlet, no outlet—Sides 1,000 feet high—Interesting lava formations—Fine trout fishing.
Mesa Verde..... 1906	South- western Colorado	77	Most notable and best preserved prehistoric cliff dwellings in United States, if not in the world.
Platt..... 1906	Southern Oklahoma	1½	Many sulphur and other springs possessing medicinal value, under Government regulation.
Glacier..... 1910	North- western Montana	1,534	Rugged mountain region of unsurpassed Alpine character—250 glacier-fed lakes of romantic beauty—60 small glaciers—Peaks of unusual shape—Precipices thousands of feet deep—Almost sensational scenery of marked individuality—Fine trout fishing.
Rocky Mountain. 1915	North middle Colorado	358	Heart of the Rockies—Snowy range, peaks 11,000 to 14,250 feet altitude—Remarkable records of glacial period.

National Parks of less popular interest are:

Sullys Hill, 1904, North Dakota Wooded hilly tract on Devils Lake.
 Wind Cave, 1903, South Dakota..... Large natural cavern.
 Casa Grande Ruin, 1892, Arizona..... Prehistoric Indian ruin.

DEPARTMENT OF THE INTERIOR

FRANKLIN K. LANE, SECRETARY

GLIMPSES OF OUR NATIONAL PARKS

BY ROBERT STERLING YARD

I

THE NATIONAL PARKS

THE national parks are areas which Congress has set apart, because of extraordinary scenic beauty, remarkable phenomena or other unusual qualification, for the use and enjoyment of the people for all time. They are administered by the Department of the Interior.

These are not parks in the common meaning of the word. They are not beautiful tracts of cultivated country with smooth lawns and winding paths like Central Park in New York, or Lincoln Park in Chicago, or Golden Gate Park in San Francisco. They are, on the contrary, large areas which nature, not man, has made beautiful and which the hand of man alters only enough to provide roads to enter them, trails to penetrate their fastnesses, and hotels and camps to live in.

There are fourteen national parks, of which eight are of the first order of size and scenic magnificence—which means a great deal in a land so beautiful as ours. Every person living in the United States ought to know much about these eight national parks and ought to visit them when possible, for, considered together, they contain more features of conspicuous grandeur than are readily accessible in all the rest of the world together; while, considered individually, there are few, if any, celebrated scenic places within easy reach abroad which are not equaled or excelled in America. Even the far-famed Swiss Alps are equaled, and, some travelers believe, excelled by the scenery of several of our own national parks.

SCENERY OF THE FIRST ORDER

We have said that in some respects American scenery is unequalled abroad. There are more geysers of large size in our Yellowstone National Park, for instance, than in all the rest of the world together, the nearest approach being the geyser fields of Iceland and far New Zealand. Again, it is conceded the world over that there is no valley

in existence so strikingly beautiful as our Yosemite Valley, and nowhere else can be found a canyon of such size and exquisite coloring as our Grand Canyon of the Colorado. In the Sequoia National Park grow trees so huge and old that none quite compare with them. These are well-known facts with which every American ought to be familiar.

The eight national parks of the first order are the Mount Rainier National Park in Washington, the Crater Lake National Park in Oregon, the Yosemite and Sequoia National Parks in California, the Glacier National Park in Montana, the Yellowstone National Park, principally in Wyoming, and the Rocky Mountain and Mesa Verde National Parks in Colorado. With these must be classed the Grand Canyon of the Colorado in Arizona, which, though still remaining a national monument, is one of the great wonders of the world.

The principal difference between a national monument and a national park is that the former has merely been made safe from encroachment by private interests and enterprise, while the latter is also in process of development by roads and trails and hotels, so as to become a convenient resort for the people to visit and enjoy.

EACH A PERSONALITY OF ITS OWN

One of the striking and interesting features of the eight greater national parks of our country is that each one of them is quite different from all the others; each has a marked personality of its own.

Mount Rainier, for instance, is an extinct volcano down the sides of which flow twenty-eight glaciers, or rivers of ice.

Crater Lake fills with water of astonishing blue the hole left when the top of Mount Mazama, another volcano in the same chain as Mount Rainier, was swallowed up in some far distant past.

The Yosemite National Park, in addition to its celebrated Yosemite Valley and lofty waterfalls, has in the north a river called the Tuolumne which spouts wheels of water fifty feet and more into the air. It has great areas of snow-topped mountains.

The Sequoia National Park contains more than a million sequoia trees, of which 12,000 are more than ten feet in diameter, and some twice that and several from twenty-five to thirty-six feet through from side to side. Measure thirty-six feet on the sidewalk and see what that means. Some of these trees are older than human history.

The Glacier National Park was made by the earth cracking in some far distant time and one side thrusting up and overlapping the other. It has cliffs several thousand feet high and more than sixty glaciers feed hundreds of lakes. One lake floats icebergs all summer. This scenery is truly Alpine.

The Yellowstone National Park, beside its geysers, has many hot springs which build glistening plateaus of highly colored mineral



THE HIGHEST WATERFALL IN THE WORLD, YOSEMITE NATIONAL PARK

The Upper Yosemite Fall drops 1,430 feet sheer, nearly as high as nine Niagaras piled one above the other. The Lower Yosemite Fall drops 320 feet. Their combined height, including intermediate cascades and rapids, is half a mile



deposits. It has a canyon gorgeous with all the colors and shades of the rainbow, and it is literally the greatest wild animal sanctuary in the world.

The Rocky Mountain National Park straddles the Continental Divide at a lofty height, with snow-capped mountains extending from end to end. Its glacier records are remarkable.

The Mesa Verde National Park hides in its barren canyons the well-preserved ruins of a civilization which passed out of existence so many centuries ago that not even tradition recalls its people.

It will be seen that one may visit a new national park each year for nearly a decade and see something quite new and remarkable at each visit.

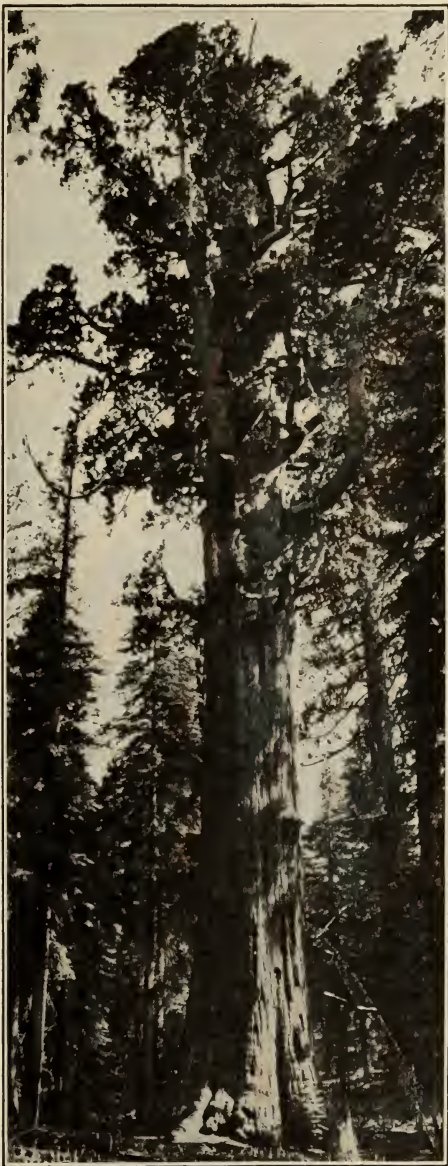
HOTELS AND CAMPS

The map will show where these national parks are located. They are all upon lines of railways and are easily and comfortably reached from any part of the United States. Each of them is in charge of a resident supervisor who has under his charge enough park rangers to protect the forests from fire, the wild animals from hunters, and the visitors from harm. There are good roads in all of these parks, and hotels or public camps or both where visitors may stay as long as they like to enjoy the scenery and study nature. Trails are built to the waterfalls, up the highest mountains, and, in short, wherever especially fine views may be found. Over these trails visitors may walk or ride on horseback as they prefer.

Many of the hotels are fine ones where every luxury may be had by those who insist upon luxuries even in the wilderness. There are often cheaper hotels also, and in the great public camps visitors may live very comfortably indeed and quite economically. One may go to these camps just as to a hotel, only he is assigned a comfortable tent instead of a room, and eats his meals at a big table in a big dining tent. There is another big tent, usually, to serve as a general living room. At night a camp fire is built in the woods, and all gather around it to sing and tell stories. Many persons who can easily afford the luxurious hotels live in the camps because they prefer doing so.

The Department of the Interior, which has all the national parks in its care, is trying to make them popular and comfortable and available for people of all degrees of income.

Not only should these parks be the best and most fully patronized health and pleasure resorts in the United States, but they should also become great centers of nature study. In the national parks only is nature most carefully conserved exactly as designed. No trees are cut down for lumber, as in the national forests outside the parks, but are allowed to reach their utmost size and age. No animals are killed except mountain lions and other predatory beasts which destroy the deer and young elk. Here, then, the student and the lover of nature may study nature in



Photograph by Pillsbury

THE LARGEST AND OLDEST LIVING THING
IN THE WORLD

The General Sherman Tree in the Sequoia
National Park, diameter 36.5 feet

her pristine beauty and under conditions which elsewhere exist only in the few remote lands not yet invaded by man.

To these national parks, then, the Department of the Interior invites the student, amateur and professional alike.

NATIONAL PARKS AND NATIONAL FORESTS

One must not confuse the national forests with the national parks. The national forests aggregate many times the area of the national parks. They were created to administer lumbering and grazing interests for the people; the lumbering, instead of being done by private interests often ruthlessly for private profit, as in the past, is now done under regulations which conserve the public interest. The trees are cut in accordance with the principles of scientific forestry, which conserve the smaller trees until they grow to a certain size, thus perpetuating the forests. Sheep, horses, or cattle graze in all pastures under governmental regulation, while in national parks horses and cattle only may be admitted where not detrimental to the enjoyment and preservation of the scenery. Regular hunting is permitted in season in the national forests, but never in the national parks. In short, the national parks, unlike the national forests, are not properties in a commercial sense, but natural preserves for the rest, recreation, and education of the people. They remain under nature's own chosen conditions. They alone maintain "the forest primeval."

Lovers of sport also find their national parks rich fields of pleasure, provided they do their hunting only with the camera. This is encouraged; and there are no other places in the world where wild animals may be approached so closely. In the Yellowstone, where shooting has been strictly prohibited since 1872, one may with reasonable care and precaution photograph deer at close quarters, approach elk and antelope and even moose and bison near enough for good pictures.

BIRDS AND WILD ANIMALS

The lesson of the Yellowstone is that wild animals greatly fear man only when man is cruel and murderous. Another lesson from national parks experience is that no wild animal will injure human beings except in self-defense. Even the grizzly bear, which we were brought up to believe an aggressive, ferocious animal, is found to be entirely shy and harmless except when violently assaulted. The monster cat of our rock fastnesses—the mountain lion—big enough and powerful enough to drag down a full-grown elk, is one of the most timid of all the beasts in the national parks, flying at great speed at the first sight or scent of man.

The national parks cover a great area, 4,665,966 acres in all. If all were put together it would mean an area of 7,290 square miles,

as large, nearly, as the State of New Jersey. The Yellowstone National Park alone contains more than 3,300 square miles, and is as big as many of the independent European principalities that warred with each other for centuries before the genius of Bismarck united them into a great empire.

Such a group of scenic areas, if developed and handled after the fashion of Switzerland, for instance, will constitute a national economic asset of incalculable value.

GENERAL INFORMATION BULLETINS

The following descriptions of some of our national parks are not intended to be exhaustive. In each, those characteristics are emphasized which individualize the park, distinguishing it from others. Any person who wishes to know more about any national park than is here available, who wishes, for instance, to know the particular traveling and living facilities in each and the expense of a visit thereto, should write to the Secretary of the Interior for the General Information Bulletin of the particular national park in which he is interested. It will be sent free.

II

THE YELLOWSTONE NATIONAL PARK

Special Characteristics: Geysers and Hot Springs; Wonderfully Colored Canyon; Largest Wild Bird and Animal Refuge

THE Yellowstone National Park, which lies principally in Wyoming, is the most widely celebrated of all our national parks because it contains more and greater geysers than all the rest of the world together. The geyser fields next in size are in Iceland and New Zealand. The rest are inconspicuous.

Geysers are, roughly speaking, water volcanoes. They occur only at places where the internal heat of the earth approaches close to the surface. Their action, for so many years unexplained, and even now regarded with wonder by so many, is simple. Water from the surface trickling through cracks in the rocks, or water from subterranean springs collecting in the bottom of the geyser's crater, down among the strata of intense heat, becomes itself intensely heated and gives off steam, which expands and forces upward the cooler water that lies above it. This makes room for the more rapid formation of steam which immediately gathers under enormous pressure.

It is then that the water at the surface of the geyser begins to bubble and give off clouds of steam, the sign to the watchers above that the geyser is about to play.

At last the water in the bottom reaches so great an expansion under continued heat that the less heated water above can no longer weigh it down, so it bursts upward with great violence, rising many feet in the air and continuing to play until practically all the water in the crater has been expelled. Spring water, or the same water cooled and falling back to the ground, again seeps through the surface to gather as before in the crater's depth, and in a greater or less time, according to difficulties in the way of its return, becomes reheated to the bursting point, when the geyser spouts again.

One may make a geyser with a test tube and a Bunsen burner. The Department of the Interior has built a small model geyser mounted on a wooden table which, when heat is applied to the metal retort on the floor, plays at regular intervals of about a minute and a quarter. The same water returns again and again to the retort, becomes reheated, and is again spouted into the air. This model, by the way, has been named Young Faithful.

THE HOT-WATER PHENOMENA

Nearly the entire Yellowstone region, covering an area of about 3,300 square miles, is remarkable for its hot-water phenomena. The geysers are confined to three basins lying near each other in the middle west side of the park, but other hot water manifestations occur at more widely separated points. Marvelously colored hot springs, mud volcanoes, and other strange phenomena are frequent. At Mammoth, at Norris, and at Thumb the hot water has brought to the surface quantities of white mineral deposits which build terraces of beautifully incrustated basins high up into the air, often engulfing trees of considerable size. Over the edges of these carved basins pours the hot water. Microscopic plants called algae grow on the edges and sides of these basins, assisting the deposition of the mineral matter and painting them hues of red and pink and bluish gray, which in warm weather glow brilliantly, but in cold weather almost disappear. At many other points lesser hot springs occur, introducing strange, almost uncanny, elements into wooded and otherwise quite normal landscapes.

A tour of these hot-water formations and spouting geysers is an experience never to be forgotten. Some of the geysers play at quite regular intervals. For many years the celebrated Old Faithful played with great regularity every seventy minutes, but during the summer of 1915 the interval lengthened to about eighty-five minutes, due, it is supposed, to the smaller snowfall and consequent lessened water supply of the preceding winter. Some of the largest geysers play at irregular intervals of days, weeks, or months. Some very small ones play every few minutes. Many bubbling hot springs, which throw



Photograph by J. E. Haynes, St. Paul

OLD FAITHFUL GEYSER, YELLOWSTONE NATIONAL PARK

water two or three feet into the air once or twice a minute, are really small, imperfectly formed geysers.

The hot-spring terraces are also a rather awe-inspiring spectacle when seen for the first time. The visitor may climb upon them and pick his way around among the steaming pools. In certain lights the surface of these pools appears vividly colored. The deeper hot pools are often intensely green. The incrustations are often beautifully crystallized. Clumps of grass, and even flowers, which have been submerged in the charged waters become exquisitely plated, as if with frosted silver.

But the geysers and hot-water formations are by no means the only wonders in the Yellowstone. Indeed the entire park is a wonderland. The Grand Canyon of the Yellowstone affords a spectacle worthy of a national park were there no geysers. But you must not confuse your Grand Canyons, of which there are several in our wonderful western country. Of these, by far the largest and most impressive is the Grand Canyon of the Colorado River, in Arizona. That is the one always meant when people speak of visiting "the Grand Canyon," without designating a location. It is the giant of canyons.

GRAND CANYON OF THE YELLOWSTONE

The Grand Canyon of the Yellowstone is altogether different. Great though its size, it is much the smaller of the two. What makes it a scenic feature of the first order is its marvelously variegated coloring. It is the cameo of canyons.

Standing upon Inspiration Point, which pushes out almost to the center of the canyon, one seems to look almost vertically down upon the foaming Yellowstone River. To the south a waterfall nearly twice the height of Niagara rushes seemingly out of the pine-clad hills and pours downward to be lost again in green.

From that point two or three miles to where you stand and beneath you widens out the most glorious kaleidoscope of color you will even see in nature. The steep slopes dropping on either side a thousand feet and more from the pine-topped levels above are inconceivably carved and fretted by the frost and the erosion of the ages. Sometimes they lie in straight lines at easy angles, from which jut high rocky prominences. Sometimes they lie in huge hollows carved from the side walls. Here and there jagged rocky needles rise perpendicularly for hundreds of feet like groups of gothic spires.

And the whole is colored as brokenly and vividly as the field of a kaleidoscope. The whole is streaked and spotted and stratified in every shade from the deepest orange to the faintest lemon, from deep crimson through all the brick shades to the softest pink, from black through all the grays and pearls to glistening white. The greens are



Copyright by J. E. Haynes, St. Paul

THE GORGEOUSLY COLORED CANYON, YELLOWSTONE NATIONAL PARK
Showing the Great Falls of the Yellowstone, 308 feet high

furnished by the dark pines above, the lighter shades of growth caught here and there in soft masses on the gentler slopes and the foaming green of the plunging river so far below. The blues, ever changing, are found in the dome of the sky overhead.

It is a spectacle which one looks upon in silence.

There are several spots from which fine partial views may be had, but no person can say he has seen the canyon who has not stood upon Inspiration Point. Remember this when you visit the Yellowstone.

WILD ANIMALS LIVING NATURALLY

Another interesting feature of the Yellowstone National Park is its wild-animal life. It is the largest and most successful preserve in the

world. Its 3,300 square miles of mountains and valleys remain nearly as nature made them, for the two hundred miles of roads and the five hotels and many camps are as nothing in this immense wilderness. No tree has been cut except when absolutely necessary for road or trail or camp. No herds invade its valleys. No rifle has been fired at a wild animal since the park was established in 1872, except by occasional poachers along the border and by the official destroyers of predatory beasts.

Visitors for the most part keep to the beaten road, and the wild animals have learned in the years that they mean them no harm. To be sure, they are seldom seen by the people filling the long trains of stages which travel from point to point daily during the season; but the quiet watcher on the trails may see deer and bear and elk and antelope to his heart's content, and he may even see mountain sheep, moose, and bison by journeying on foot or by horseback into their distant retreats. In the fall and springs, when the crowds are absent, wild deer gather in great numbers at the hotel clearings to crop the grass, and the officers' children feed them flowers. One of the diversions at the road builders' camps in the wilderness is cultivating the acquaintance of the animals. There are photographs of men feeding sugar to bear cubs while mother bear looks idly on.

Thus one of the most interesting lessons from the Yellowstone is that wild animals are fearful and dangerous only when men treat them as game or as enemies.

BEARS, ELK, MOOSE, DEER, ANTELOPE, AND BISON

Even the big grizzlies, which are generally believed to be ferocious, are proved by our national parks experience to be entirely inoffensive if not attacked. Even when attacked they make every possible effort to escape, and only turn upon men when finally driven into some place from which they can not get away. Then only are they dangerous, and then they are dangerous indeed.

The grizzly bear, by the way, is one of the shyest of wild animals, and may be seen only with difficulty. It lives principally on roots, berries, nuts, and honey—when honey may be had. It can not climb trees like the brown bears. Its little ones are born in caves where bears hibernate through the winters and are little larger than squirrels when they first come into the world.

The brown, cinnamon, and black bears, which, by the way, are the same species only differently colored—the blondes and brunettes, so to speak, of the same bear family—are quite different. They are playful, comparatively fearless, sometimes even friendly. They are greedy fellows and steal camp supplies whenever they can. The large meat wagons which carry supplies to the distant hotels and camps overnight are equipped with iron covers, because the bears



Photograph by G. Swanson

BLACK TAIL DEER, YELLOWSTONE NATIONAL PARK

used to rip off the wooden tops during the resting times and run off with sides of beef and mutton. One night several years ago teamsters drove three bears from the top of a single one of these big wagons.

This wild animal paradise contains thirty thousand elk, several thousand moose, innumerable deer, many antelope, and a large and increasing herd of wild bison.

It is an excellent bird preserve also; more than a hundred and fifty species live natural, undisturbed lives. Eagles abound among the crags. Wild geese and ducks are found in profusion. Many thousands of large white pelicans add to the picturesqueness of Yellowstone Lake.

The Yellowstone also contains a petrified forest of prehistoric trees, the partial trunks of some of which remain standing.

DISCOVERY OF THE YELLOWSTONE

The first recorded visit to the Yellowstone was made by John Colter in 1810. He was returning home alone from the Lewis and Clark expedition and took refuge there from hostile Indians. His story of its wonders was discredited.

The next recorded visit was by a trapper named Joseph Meek in 1829, who described it as "a country smoking with vapor from boiling springs and burning with gases issuing from small craters." From some of these craters, he said, "issued blue flame and molten brimstone," which, of course, was not true, though doubtless Meek fully believed it to be the truth.

Between 1830 and 1840 Warren Angus Ferris, a clerk in the American Fur Co., wrote the first description of the Firehole Geyser Basin, but it was not until 1852 that the geyser district was actually

defined and the geysers precisely located. This was done by Father De Smet, the famous Jesuit missionary.

It remained for a Government expedition, sent out in 1859 under command of Capt. W. F. Reynolds, to first really explore and chart the region. Several private explorers followed, but so great was public incredulity as to the marvels they described that they did not dare tell their experiences before any general audiences, for several lecturers had been stoned in the streets as impostors. The large exploring expedition under Henry D. Washburn, surveyor general of Montana, in 1870, finally established the facts to the public belief and led to the creation of the Yellowstone National Park.

III

THE YOSEMITE NATIONAL PARK

Special Characteristics: Sensationally Beautiful Valley and Spectacular Waterfalls

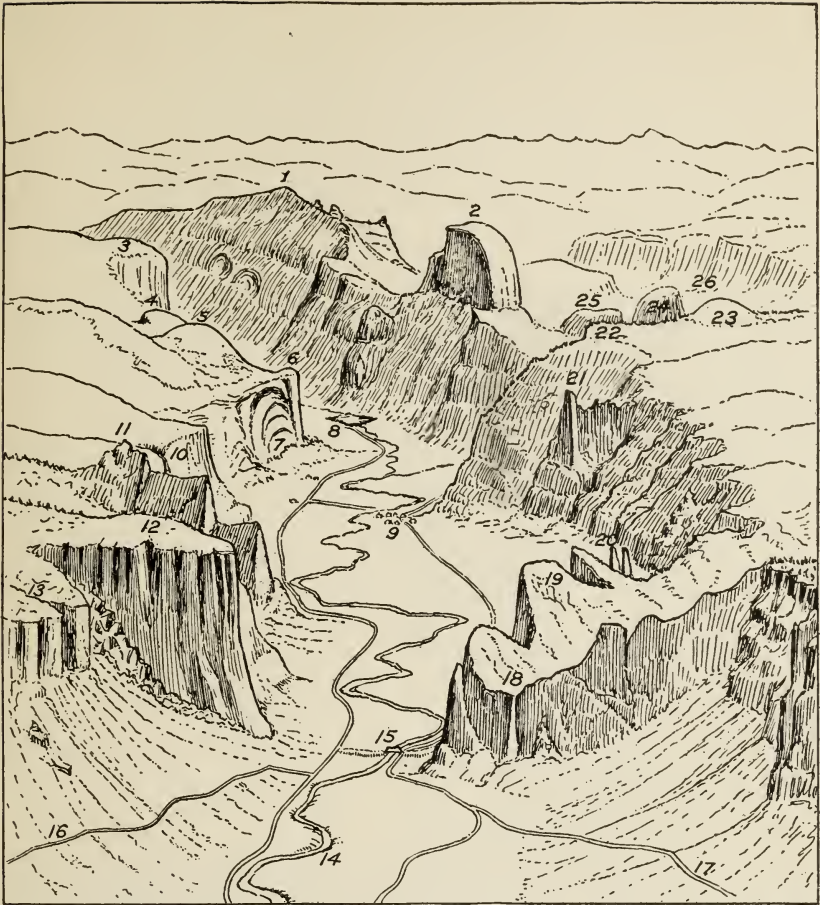
THE Yosemite National Park lies near the crest of the Sierra Nevada in middle eastern California. Its 1,100 square miles contain scenic features of beauty so unusual and variety so wide that adequate description reads like romance.

The famous Yosemite Valley is a small part of this extraordinary holiday garden—a mere crack in its granite mountains seven miles long by less than a mile wide.

For the rest, the park includes, in John Muir's words, "the headwaters of the Tuolumne and Merced Rivers, two of the most songful streams in the world; innumerable lakes and waterfalls and smooth silky lawns; the noblest forests, the loftiest granite domes, the deepest ice-sculptured canyons, the brightest crystalline pavements, and snowy mountains soaring into the sky twelve and thirteen thousand feet, arrayed in open ranks and spiry pinnacled groups partially separated by tremendous canyons and amphitheaters; gardens on their sunny brows, avalanches thundering down their long white slopes, cataracts roaring gray and foaming in the crooked rugged gorges, and glaciers in their shadowy recesses working in silence, slowly completing their sculptures; new-born lakes at their feet, blue and green, free or encumbered with drifting icebergs like miniature Arctic Oceans, shining, sparkling, calm as stars."

This land of enchantments is a land of enchanted climate. Its summers are warm, but not too warm; dry, but not too dry; its nights cold and marvelously starry.

The world-famous Yosemite Valley was discovered in 1851 by mounted volunteers pursuing Indians into their fastnesses. Because



BIRD'S-EYE VIEW OF YOSEMITE VALLEY LOOKING EASTWARD TO THE CREST OF THE SIERRA NEVADA

1, Clouds Rest; 2, Half Dome; 3, Mount Watkins; 4, Basket Dome; 5, North Dome; 6, Washington Column; 7, Royal Arches; 8, Mirror Lake and mouth of Tenaya Canyon; 9, Yosemite Village; 10, Head of Yosemite Falls; 11, Eagle Peak (the Three Brothers); 12, El Capitan; 13, Ribbon Fall; 14, Merced River; 15, El Capitan Bridge and Moraine; 16, Big Oak Flat Road; 17, Wawona Road; 18, Bridalveil Fall; 19, Cathedral Rocks; 20, Cathedral Spires; 21, Sentinel Rock; 22, Glacier Point; 23, Sentinel Dome; 24, Liberty Cap; 25, Mount Broderick; 26, Little Yosemite Valley.

of its extraordinary character and quite exceptional beauty it quickly became celebrated; but it was not until 1874 that a road was built into it. Until then it was approached only by trail.

THE VALLEY AND ITS WATERFALLS

No matter what their expectation, most visitors are delightfully astonished upon entering the Yosemite Valley. The sheer immensity

of the precipices on either side of the valley's peaceful floor; the loftiness and the romantic suggestion of the numerous water walls; the majesty of the granite walls; and the unreal, almost fairy quality of the ever-varying whole, can not be successfully foretold.

This valley was once a tortuous river canyon. So rapidly was it cut by the Merced that the tributary valleys soon remained hanging high on either side. Then the canyon became the bed of a great glacier. It was widened as well as deepened, and as a consequence the hanging character of the side valleys was accentuated.



Photograph by Lindley Eddy

COMMON BLACK OR BROWN BEAR

There were hundreds, thousands, of other ice-filled canyons in the Sierra; but in none did the glaciers accomplish as much as they did in the Yosemite Valley. Why? Because there the Sierra granites, as a rule solid and exceptionally resistant, were traversed by thousands of fissures and therefore readily scooped out.

The manner of its making explains the extreme loftiness of the water falls which pour over the rim into the valley.

The Yosemite Falls, for instance, drops 1,430 feet in one sheer fall, a height equal to nine Niagara Falls piled one on top of the other. The Lower Yosemite Fall, immediately below, has a drop of

320 feet, or two Niagaras more. Vernal Falls has the same height, while Illilouette Falls is 50 feet higher. The Nevada Falls drops 594 feet sheer; the celebrated Bridal Veil Fall 620 feet, while the Ribbon Falls, highest of all, drops 1,612 feet sheer, a straight fall ten times as great as Niagara. Nowhere else in the world may be had a water spectacle such as this.

Similarly the sheer summits. Cathedral Rocks rise 2,500 feet perpendicular from the valley; El Capitan, 3,604 feet; Sentinel Dome, 4,157 feet; Half Dome, 4,892 feet; Cloud's Rest, 5,964 feet.

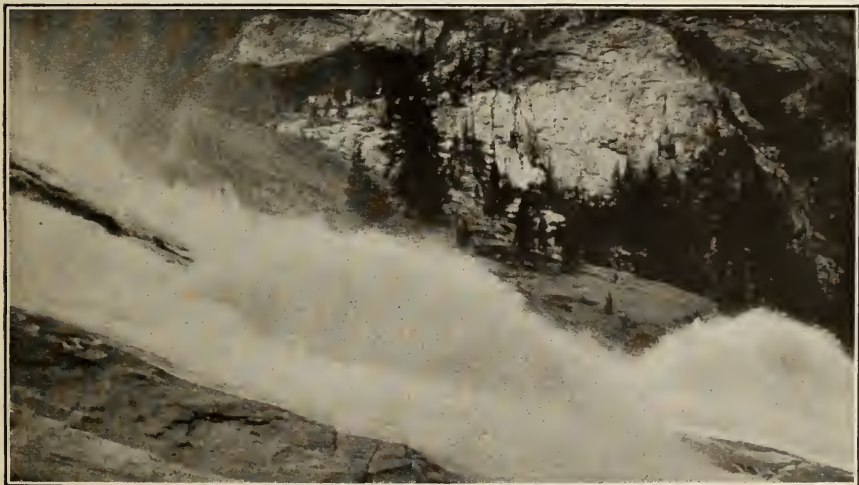
Among these monsters the Merced sings its winding way.

The falls are at their best in May and June while the winter snows are melting. They are still fine in July, but after that decrease rapidly in volume.

The Yosemite Valley, extraordinary though it is from both the scenic and the scientific points of view, is an exceedingly small part of the Yosemite National Park; but until the summer of 1915, when the Department of the Interior acquired possession of the old Tioga Road, the magnificent country north of the valley was known only to a few enthusiastic mountaineers who went in yearly with camp outfits. The old Tioga Road was built in 1881 to a mine soon after abandoned. Its recent repair by the Government has opened to all one of the finest scenic sections in America, a country dotted with splendid snowy summits, grown with glorious forests, and watered with rushing trout streams.

THE WATER WHEELS

And thus is added to the amazing water spectacle for which the valley is famous still another kind of Yosemite waterfall destined to world-wide celebrity. The Tuolumne River, descending sharply to the head of the Hetch Hetchy Valley, becomes, in John Muir's phrase, "one wild, exulting, onrushing mass of snowy purple bloom spreading over glacial waves of granite without any definite channel, gliding in magnificent silver plumes, dashing and foaming through huge boulder dams, leaping high in the air in wheel-like whirls, displaying glorious enthusiasm, tossing from side to side, doubling, glinting, singing in exuberance of mountain energy." The crowning feature of this mad spectacle are the water wheels which rise 50 feet or more into the air when the slanting river strikes obstructions.



Photograph by W. L. Huber

WATERWHEELS IN THE TUOLUMNE RIVER, YOSEMITE NATIONAL PARK

The sloping current, striking projecting rocks, rises fifty feet or more in the air

In addition to its many other attractions, the Yosemite National Park contains three groves of sequoias, the celebrated "Big Trees of California." One of these trees, the Grizzly Giant, has a diameter of 29.6 feet and a height of 204 feet.

IV

THE SEQUOIA NATIONAL PARK

Special Characteristic: Largest and Oldest Trees in the World

AND they said, Go to, let us build us a city and a tower whose top may reach unto heaven.

Thus is recorded, in the eleventh chapter of Genesis, the building of the Tower of Babel. While this tower was doubtless still standing, and a hundred years or two before the birth of Abraham, a tiny seed in the warm soil of a mountain slope on quite the opposite side of the world thrust into the light of day a slender green spike which was destined, during an existence of more than four thousand years, to become itself a lofty tower; noble in form, "with a physiognomy almost Godlike," as John Muir puts it, pulsating with life to its top-



Photograph by J. E. Roberts

PICNIC PARTY AMONG THE BIG TREES OF SEQUOIA NATIONAL PARK

most leaflet more than three hundred feet above the ground, and giving forth a babel of bird song to the accompaniment which the summer winds played upon its many millions of tiny leaves.

On the stump of this prostrate sequoia tree, one of the noblest of the celebrated Big Trees of California, John Muir counted more than four thousand rings, a ring for every year of its life. Its trunk, exclusive of bark, was thirty-five feet eight inches in diameter. As the bark of the very largest sequoias is two feet or more in thickness, this giant must have measured forty feet in diameter when it was still growing on one of the slopes of the Kings River.

LARGEST OF THE MONSTERS

In the Sequoia National Park, upon the upper slopes of the Sierra Nevada in central California, and in the little General Grant National Park, six miles away and under the same management, grows 1,166,000 sequoia trees, of which 12,000 are more than ten feet in diameter. Some of the others have these dimensions:

General Sherman Tree: Diameter, 36.5 feet; height, 279.9 feet.

General Grant Tree: Diameter, 35 feet; height, 264 feet.

Abraham Lincoln Tree: Diameter, 31 feet; height, 270 feet.

California Tree: Diameter, 30 feet; height, 260 feet.

George Washington Tree: Diameter, 29 feet; height, 255 feet.

William McKinley Tree: Diameter, 28 feet; height, 291 feet.

Dalton Tree: Diameter, 27 feet; height, 292 feet.

There are sequoia trees of great size in several other parts of California also, notably in the Yosemite National Park, where three distinct groves are found; but by far the greatest number, and the individual trees of greatest size, are in the Sequoia National Park and its little neighbor.

HOW TO VISUALIZE A BIG TREE

It is extremely difficult to realize what the dimensions of these trees really mean.

To visualize as best you can the greatest of those now standing, the General Sherman Tree, measure off and stake its diameter, 36 feet 6 inches, upon the ground in front of a church the height of whose steeple you can readily ascertain. Then stand back a distance equal to the height of the tree, 280 feet, and look hard at the stakes whose distance apart represents the thickness of the trunk.

Now raise your eyes slowly, imagining this trunk rising in front of the church, tapering very slightly as it rises. When you are looking upward at an angle of forty-five degrees from the spot where you are standing (and this will not be difficult to calculate) you will be looking at the point where the top of the General Sherman Tree

would be if it were growing in front of your church instead of in the Sequoia National Park. The known height of the steeple will help you verify this calculation.

It will help your comprehension of the great size of these trees to know that a box big enough to have easily held the ill-fated ship *Lusitania*, one of the largest ever built, could be made from inch boards sawed from any one of these great sequoias, with boards enough left over to build a dozen houses. Automobiles and six-horse teams have been driven up and down the fallen trunks of several great sequoias, and there are regular wagon roads running through gaps in the trunks of several others in our national parks. Two parallel street car lines and a driveway might be run through the trunks of several of the very largest.

THE OLDEST LIVING THING

But the age of the sequoia is still more difficult to realize. It is beyond compare the oldest living thing.

Several of the trees now growing in hearty maturity in the Sequoia National Park were vigorous youngsters before the pyramids were built on the Egyptian desert before Babylon reached its prime. Hundreds of them were thriving before the heroic ages of ancient Greece—while, in fact, the rough Indo-Germanic ancestors of the Greeks were still swarming from the north. Thousands were lusty youths through all the ages of Greek art and Roman wars. Tens of thousands were flourishing trees when Christ was born in Bethlehem.

But with all its vast age the sequoia to-day is the embodiment of serene vigor. No description, says Muir, can give any adequate idea of its majesty, much less its beauty. He calls it nature's forest masterpiece. He dwells upon its patrician bearing, its suggestion of ancient stock, its strange air of other days, its thoroughbred look inherited from the long ago. "Poised in the fullness of strength and beauty, stern and solemn in mien, it glows with eager enthusiastic life to the tip of every leaf and branch and far-reaching root, calm as a granite dome, the first to feel the touch of the rosy beams of morning, the last to bid the sun good night."

The sequoia is regular and symmetrical in general form. Its powerful, stately trunk is purplish to cinnamon brown and rises without a branch a hundred or a hundred and fifty feet—which is as high or higher than the tops of most forest trees. Its bulky limbs shoot boldly out on every side. Its foliage, the most feathery and delicate of all the conifers, is densely massed. The bright green cones are about two and a half inches long, generating seeds scarcely more than an eighth of an inch across. The wood is almost indestructible except by fire. Fallen trunks and broken branches lie for centuries undecayed and almost unaltered.

The sequoias are the glory, as they were the cause, of the Sequoia National Park. Scattered here and there over great areas, they cluster chiefly in thirteen separate groves, and it is in these groves that they attain their greatest size and luxuriance.

But they are by no means the only attractions of this national park, which many frequenters declare nature has equipped best of all for the joys and pleasures of mountain living.

IDEAL FOR CAMPING OUT

It is the ideal place to camp out. It is a country of magnificent mountain scenery, easily accessible when once you are in it. Its peaks are among the loftiest, its canyons among the deepest and most romantic. Its summer temperatures are even and bracing. Its summers are practically without rain.

Across its borders north and east opens up a mountain region, on the crest of the Sierra, of unexcelled grandeur. Mount Whitney, the highest mountain in the United States, 14,501 feet, lies beyond its eastern boundary. The Kings and the Kern Rivers have few scenic equals. These and its many other rushing streams abound in trout.

V

THE MOUNT RAINIER NATIONAL PARK

Special Characteristic: Complicated Glacial System Flowing from One Peak

IN the northwestern corner of the United States rises, from the Cascade Mountains, a series of extinct volcanoes ice-clad from summit to foot the year around. Foremost among them, counting from south to north, are Mount Shasta in California; Mount Hood in Oregon; Mount St. Helens, Mount Adams, Mount Rainier, and Mount Baker in Washington. Once, in the dim ages when America was making, they blazed across the sea like huge beacons. To-day, their fires quenched, they suggest a stalwart band of Knights of the Ages, helmeted in snow, armored in ice, standing at parade upon a carpet patterned gorgeously in wild flowers.

Easily chief of this knightly band is Mount Rainier, a giant towering 14,408 feet above tidewater in Puget Sound. Home-bound sailors far at sea mend their courses from his silver summit. Travelers over land catch the sun glint from his shining sides at a distance of more than one hundred and fifty miles.

This mountain has a glacier system far exceeding in size and impressive beauty that of any other in the United States. From its summit and sirques twenty-eight named rivers of ice pour slowly down its sides. There are others unnamed. Seen upon the map, as

if from an aeroplane, one thinks of it as an enormous frozen octopus stretching icy tentacles down upon every side among the rich gardens of wild flowers and splendid forests of fir and cedars below.

BIRTH OF THE GLACIERS

Every winter the moisture-laden winds from the Pacific, suddenly cooled against its summit, deposit upon its top and sides enormous snows. These, settling in the mile-wide crater which was left after a great explosion in some prehistoric age carried away perhaps two thousand feet of the volcano's former height, press with overwhelming weight down the mountain's sloping sides.

Thus are born the glaciers, for the snow under its own pressure quickly hardens into ice. Through twenty-eight valleys, self-carved in the solid rock, flow these rivers of ice, now turning, as rivers of water turn, to avoid the harder rock strata, now roaring over precipices like congealed waterfalls, now rippling, like water currents, over rough bottoms, pushing, pouring relentlessly on until they reach those parts of their courses where warmer air turns them into rivers of water.

There are forty-eight square miles of these glaciers, ranging in width from five hundred feet to a full mile and in thickness from fifty feet to many hundreds, perhaps even more than a thousand feet.

ONCE WAS 2,000 FEET HIGHER

Mount Rainier is nearly three miles high, measured from sea level. It rises nearly two miles above its immediate base. Once it was a complete cone like the famous Fujiyama, the sacred mountain of Japan. Then it was probably 16,000 feet high.

Indian legends tell of the great eruption which blew its top off.

The National Park, which incloses Mount Rainier, is about eighteen miles square, containing three hundred and twenty-four square miles. It is easily reached by railroad and automobile from neighboring cities. A new automobile road enables stages to bring visitors to beautiful Paradise Valley, whose flowered slopes are bordered by the great Nisqually, Paradise, and Stevens Glaciers. One may reach this point in four hours from Tacoma and return the same day. But it is a spot where the visitor may well spend weeks.

The Nisqually Glacier is the best known though by no means the largest of the glaciers. It is five miles long and at Paradise Valley is half a mile wide. Glistening white and fairly smooth at its shining source on the mountain's summit, its surface here is soiled with dust and broken stone and squeezed and rent by terrible pressure into fantastic shapes. Innumerable crevasses or cracks many feet deep break across it, caused by the more rapid movement of the



Photograph by Curtis & Miller, Seattle

THE KAUTZ GLACIER, MOUNT RAINIER NATIONAL PARK

Showing its winding course from its Cirque near the Summit

glacier's middle than its edges; for glaciers, again like rivers of water, develop swifter currents nearer mid-stream.

Professor Le Conte tells us that the movement of Nisqually Glacier in summer averages, at mid-stream, about sixteen inches a day. It is far less at the margins, its speed being retarded by the friction of the sides.

It is one of the great pleasures of a visit to Mount Rainier National Park to wander over the fields of snow and climb out on the Nisqually Glacier and explore its crevasses and ice caves.



Photograph by Curtis & Miller, Seattle

MOUNT RAINIER, SHOWING BEGINNING OF NISQUALLY GLACIER
View from wild-flower-carpeted Paradise Valley

Like all glaciers, the Nisqually gathers on its surface masses of rock with which it strews its sides just as rivers of water strew their banks with logs and floating *débris*. These are called lateral moraines, or side moraines. Sometimes glaciers build lateral moraines miles long and over a thousand feet high, as you will see when you visit the Rocky Mountain National Park.

The rocks which are carried in midstream to the end of the glacier and dropped when the ice melts are called the medial or middle moraine.

The end, or snout, of the glacier thus always lies among a great mass of rocks and stones. The Nisqually River flows from a cave in the end of the Nisqually Glacier's snout, for the melting begins miles upstream under the glacier. The river is milky white when it first appears because it carries sediment and powdered rock, which, however, it deposits in time, becoming quite clear.

There are many glaciers as large and larger than the Nisqually, but they are little known because so hard to reach. The Department

of the Interior has now completed trails around the great ice mountain and all of these glaciers are now accessible.

CREATURES LIVING IN THE ICE

Many interesting things might be told of these glaciers were there space. For example, several species of minute insects live in the ice, hopping about like tiny fleas. They are harder to see than the so-called sand fleas at the seashore because much smaller. Slender, dark-brown worms live in countless millions in the surface ice. Microscopic rose-colored plants also thrive in such great numbers that they tint the surface here and there, making what is commonly called "red snow."

GORGEOUS CARPETING OF FLOWERS

But this brief picture of the Mount Rainier National Park would miss its loveliest touch without some notice of the wild-flower parks lying at the base, and often reaching far up between the icy fingers of Mount Rainier. Paradise Valley, Henrys Hunting Ground, Spray Park, Summerland—such are the names given to some of these beauty spots.

Let John Muir, the celebrated naturalist, describe them here.

"Above the forests," he writes, "there is a zone of the loveliest flowers, fifty miles in circuit and nearly two miles wide, so closely planted and luxurious that it seems as if nature, glad to make an open space between woods so dense and ice so deep, were economizing the precious ground and trying to see how many of her darlings she can get together in one mountain wreath—daisies, anemones, columbine, erythroniums, larkspurs, etc., among which we wade knee-deep and waist-deep, the bright corollas in myriads touching petal to petal. Altogether this is the richest subalpine garden I have ever found, a perfect flower elysium."

VI

THE CRATER LAKE NATIONAL PARK

Special Characteristic: Lake of Great Depth Filling Collapsed Volcanic Crater

IN the heart of the Cascade Mountains of our Northwest, whose volcanoes were in constant eruption in the ages before history, and now, extinct and ice-plated, shine like huge diamonds in the sunlight, there lies, jewel-like in a setting of lava, a lake of unbelievable blue. The visitor who comes suddenly upon it stands silent with emotion, overcome by its quite extraordinary beauty and by a

strange sense of mystery which even the unimaginative feel keenly and which increases rather than decreases with familiarity.

This is Crater Lake.

One of the very largest of these ancient volcanoes was Mount Mazama. It stood in the southern central part of what is now Oregon, two hundred miles south of Mount Rainier and nearly as lofty. It was about the height of Mount Shasta, in plain sight of which it rose nearly a hundred miles to its north.



Photograph by H. T. Cowling

ACROSS CRATER LAKE, SHOWING WIZARD ISLAND

The high point on the opposite rim of Llao Rock

But this was ages ago. No human eyes ever saw Mount Mazama. Long before man came, the entire upper part of it in some titanic cataclysm fell in upon itself as if swallowed by a subterranean cavern, leaving its craterlike lava sides cut sharply downwardly into the central abyss.

What a spectacle that must have been !

The first awful depth of this vast hole no man can guess. But the volcano was not quenched; it burst up through the collapsed lavas in three places, making lesser cones within the greater, but none quite so high as the surrounding rim.

Then the fires ceased and gradually, as the years passed, springs percolated into the vast basin and filled it with water within a thousand feet of its rim. As you see it to-day one of these cones emerges a few hundred feet from the surface. The lake is 2,000 feet deep in places. It has no inlet of any sort nor is there any stream running

out of it; but the water is supposed to escape by underground channels and to reappear in the Klamath River, a few miles away.

Geologists find Crater Lake of special interest because of the way nature made it. Many volcanoes have had their tops blown off. Mount Rainier was one of these. But no other in the United States has fallen into itself, like Mount Mazama.

The evidence of this process is quite conclusive. The lava found on the slopes that remain was not blown there from an exploding summit but ran, hot and fluid, from a crater many thousands of feet higher. The pitch of these outer slopes enables the scientist to tell with reasonable probability how high the volcano originally was.

ROMANTIC INDIAN LEGENDS

The Indians believed that Crater Lake was the home of a great spirit whom they called Llao. The blue waters teemed with giant crawfish, his servants, some of them so large that they could reach great claws to the top of the cliffs and seize venturesome visitors. Another great spirit chieftain, whom they called Skell, was supposed to live in the Klamath Marsh near by and to have many servants who could take at will the forms of eagles and antelopes.

War broke out, so the Indian legend says, between Llao and Skell and Skell was captured. The monsters from the lake tore out his heart and played ball with it, tossing it back and forth from mountain top to mountain top. But it was caught in the air by one of Skell's eagles and by him passed to one of Skell's antelopes, and by him passed to others who finally escape with it.

Skell's body miraculously grew again around his heart and, in time, he captured Llao and tore his body into fragments, which he tossed into the lake. The giant crawfish, thinking them fragments of Skell's body, devoured them greedily. But when, last of all, Llao's head was thrown in, the monsters recognized it and would not eat it.

The remains of Llao's head remain to-day sticking out of the water of Crater Lake. Some Indians still look upon it with awe, but scientists recognize it as the little cone described above. Its name is Wizard Island.

Another legend describes the strength-giving power of the water. A band of Klamath Indians came unexpectedly upon the rim and ran away in terror. But one, braver than the others, remained to gaze upon its beauty. He lit a camp fire and slept.

Again and again he returned. One day he ventured to the water's edge. After many moons he dared even to bathe in the lake, and was filled with great strength. He told his tribe, and, after many moons, others came and bathed and were strengthened. Then all the tribe bathed in the waters and became wonderfully strong.

But finally Llao had his revenge. His monsters seized the brave who first ventured, bore him to the highest part of the rim, and tore his body into small pieces. The spot where this was done is to-day called Llao Rock.

PHANTOM SHIP AND WIZARD ISLAND

Crater Lake is one of the most beautiful spots in America. The gray lava rim is remarkably sculptured. The water is remarkably blue, a lovely turquoise along the edges, and, in the deep parts, seen from above, extremely dark. The contrast on a sunny day between the unreal, fairylike rim across the lake and the fantastic sculptures at one's feet, and, in the lake between, the myriad gradations from faintest turquoise to deepest Prussian blue, dwells long in the memory.

Unforgettable, also, are the twisted and contorted lava formations of the inner rim. A boat ride along the edge of the lake reveals these in a thousand changes. At one point near shore a mass of curiously carved lava is called the Phantom Ship because, seen at a distance, it suggests a ship under full sail. The illusion at dusk or by moonlight is striking. In certain slants of light the Phantom Ship suddenly disappears—a phantom, indeed.

Another experience full of interest is a visit to Wizard Island. One can climb its sides and descend into its little crater.

VII

THE MESA VERDE NATIONAL PARK

Special Characteristic: Prehistoric Cliff Dwellings

WHERE did the Indians come from? That is one of the innumerable questions which anthropologists have not yet solved. Some suggest that they came from Asia by way of Alaska because the Eskimo seem to somewhat resemble Mongolians. Others think they came from Europe by way of Greenland; others that they came from the South Sea islands by way of South America.

Perhaps all these theorists are right. In one thing only do they agree and that is that, from the Arctic to the Antarctic, no matter what their tribal or other differences due to varying conditions of climate and surroundings, all American Indians are of one physical type with similar mental characteristics and cultural tendencies.

Their highest civilization undoubtedly developed in Peru, Central America, and southern Mexico, where architectural ruins of quite astonishing beauty are to-day crumbling under the jungle. This civilization was ruthlessly destroyed by the Spanish conquest following the discovery of America.

The next highest prehistoric civilization was in our own Southwest, and the remains of its highest special development are the cliff



SPRUCE TREE HOUSE, MESA VERDE NATIONAL PARK

Showing how the dwellings are protected under overhanging cliffs

dwellings of the Mesa Verde in southwestern Colorado, to preserve which Congress has set apart the Mesa Verde National Park.

When one speaks of the Pueblo Indians he does not mean an Indian stock or tribe, but merely Indians, possibly of various stocks and many tribes, who used to live, and a few of whose modern descendants still live, in pueblos or community houses of many rooms holding entire tribes or villages under one roof. The builders of Mesa Verde's prehistoric dwellings were of the Pueblo type.

BURROWING INTO THE MESAS

Those who have traveled through our Southwestern States have seen from the car window innumerable mesas or small isolated plateaus rising abruptly for hundreds of feet from the bare and often arid plains. The word mesa is Spanish for table, and indeed many of these mesas when seen at a distance may suggest to the imaginative mind tables with cloths reaching to the floor.

Once the level of these mesa tops was the level of all of this vast southwestern country, but the rains and floods of centuries have washed away all the softer earth down to its present level, leaving standing only the rocky spots or those so covered with surface rocks that the rains could not reach the softer gravel underneath.

All have heard of the Enchanted Mesa in New Mexico which the Indians of recent times considered sacred. The Mesa Verde, or green mesa (because it is covered with stunted cedar and pinyon trees in a land where trees are few) is the next most widely known.

The Mesa Verde is one of the largest mesas. It is fifteen miles long and eight miles wide. At its foot are masses of broken rocks rising from 300 to 500 feet above the bare plains. These are called the talus. Above the talus yellow sandstone walls rise precipitously two or three hundred feet higher to the mesa's top.

It stands on the right bank of the Mancos River, down to which a number of small, rough canyons, once beds of streams, slope from the top of the mesa. It is in the sides of these small canyons where the most wonderful and best preserved cliff dwellings in America, if not in the world, are found to-day.

LIVING HARD IN PREHISTORIC TIMES

In prehistoric times a large human population lived in these cliff dwellings, seeking a home there for protection. They obtained their livelihood by agriculture on the forbidding tops of the mesa, cultivating scanty farms which yielded them small crops of corn.

Life must have been hard in this dry country, when the Mesa Verde communities flourished in the side of these sandstone cliffs. Game was scarce and hunting arduous. The Mancos yielded a few fishes. The earth contributed berries or nuts. At that time, as at present, water was rare and found only in sequestered places near the heads of the canyons, but notwithstanding these difficulties the inhabitants cultivated their farms and raised their corn, which they ground on flat stones called metates, and baked their bread on a flat stone griddle. They boiled their meat in well-made vessels, some of which were artistically decorated.

Their life was hard, but so confidently did they believe that they were dependent upon the gods to make the rain fall and the corn grow that they were a religious people who worshipped the sun as the father of all, and the earth as the mother who brought them all their material blessings. They possessed no written language, and could only record their thoughts by a few symbols which they painted on their earthenware jars or scratched on the sides of the cliffs adjoining their habitations.

As their sense of beauty was keen, their art, though primitive, was true; rarely realistic, generally symbolic. Their decoration of cotton fabrics and ceramic work might be called beautiful, even when judged by the highly developed taste of to-day. They fashioned axes, spear points, and rude tools of stone; they wove brightly-patterned sandals and made attractive basketry.

They were not content with rude buildings, and had long outgrown caves or earth homes that satisfied less civilized Indians farther north and south of them. They shaped stones into regular forms, ornamented them with designs and laid them one on another. Their masonry resisted the destructive forces of centuries of rain and snow beating upon them.

The Mesa Verde tribes probably had little culture when they first climbed these precipitous rocks and found shelter, like animals, in the natural caves under the overhanging floor of the mesa. These caves were shelters not only from the storm of winter and the burning sun of summer, but from rapacious human enemies as well; for there are evidences of determined warfare among the prehistoric tribes of our southwest lands.

But with the generations, perhaps the centuries, they made rapid strides. Ladders were substituted for zigzag trails, making their retreats more inaccessible, adobe supplemented caves, brick and stone succeeded adobe, culture succeeded savagery.

DISCOVERY OF SUN TEMPLE

A great mound on the top of the mesa which Dr. Fewkes unearthed in the summer of 1915 shows that, probably about 1300 A. D., they had begun to emerge from the caves to build upon the surface, still a further advance in civilization. It is significant that this building is partially sculptured and architecturally ambitious. It is still more significant that it was not a house for temporal needs nor a fortress, but religious structure. It was a temple to their god, the sun.

The remains of this advanced civilization, of quality so greatly beyond its neighbors, may be seen and studied by all who choose to visit the Mesa Verde National Park. It is an experience full of interest and pleasure. There are many canyons, and many ruins in each canyon. There are ruins yet unexplored. There are several mounds, like that under which Sun Temple was discovered, yet unearthed. The visitor may enter these ruins and examine many of the articles which were found in them.

EXPLORATION OF THE MESA VERDE

Two herdsmen, Richard and Alfred Wetherill, while hunting lost cattle one December day in 1888, discovered these ruins. Coming to the edge of a small canyon, they saw under the overreaching cliffs of the opposite side, apparently hanging above a great precipice, what they thought was a city with towers and walls. They were astonished beyond measure—and indeed even the expectant visitor of to-day involuntarily exclaims over the beauty of the spectacle.

Later they explored it and called it Cliff Palace—an unfortunate name, for it was not a palace at all, but a village with two hundred rooms for family living and with twenty-two kivas, or sacred rooms, for worship. Later on they found another similar community dwelling which once sheltered three hundred and fifty inhabitants. This they called Spruce Tree House because a large spruce tree grew near it. These names have remained.

Other explorers followed and many other ruins were found. This is not the place to name or describe them, but it may be said that here may be seen the oldest and most fully realized civic-center scheme in America. City planning of which we hear so much now, as if it were a new idea, began in America five or six centuries ago under the cliffs of the Mesa Verde.

Antiquities are not the only attractions in the Mesa Verde National Park. Its natural beauties should not be overlooked. In winter it is wholly inaccessible on account of the deep snows; in some months it is dry and parched, but in June and July when rains come vegetation is in full bloom, the plants flower and the grass grows high in the glades; the trees put forth their new green leaves. The Mesa Verde is attractive in all seasons of the year and full of interest for those who love the unusual and picturesque of mountain scenery.

VIII

THE GLACIER NATIONAL PARK

Special Characteristics: Unsurpassed Alpine Scenery; 250 Lakes of Particular Beauty

THE Glacier National Park is so named because in the hollow of its rugged mountain tops lie more than sixty glaciers. It is in northwestern Montana right up against the Canadian boundary line, from which, on the map, it appears to hang down like a boy's pocket full of the sort of things boys usually carry there. It is a land of peaks and precipices, snow, ice, rushing rivers, waterfalls, and lakes of great loveliness. Experienced travelers tell us that nowhere in the world is alpine beauty found in such diversity and luxuriance. It contains 1,534 square miles.

A glacier is a river of ice, remarkably like a river of water in its action, only, of course, much slower. The glacier begins in a pocket or cirque of snow instead of in a lake or spring, as does a river.

Like the river, it flows through valleys, the ice becoming harder under the pressure from above. It grows in size by smaller glaciers flowing into it. It breaks into ripples of ice while flowing over rocky ledges, and, also like rivers, forms falls when dropping over precipices.

The glacier ends when it reaches far enough down the mountain sides for the warmer weather to melt the ice into a river of water.

But, with all its glaciers, the Glacier National Park is chiefly remarkable for its picturesquely modeled peaks, the unique quality of its rugged mountain masses, its gigantic precipices, and the romantic loveliness of its lakes. Though all the other National Parks have these general features in addition to others which differentiate each from the other, the Glacier National Park possesses

them in unusual abundance and especially happy combination. In fact, the almost sensational massing of these scenic features is what gives it marked individuality.

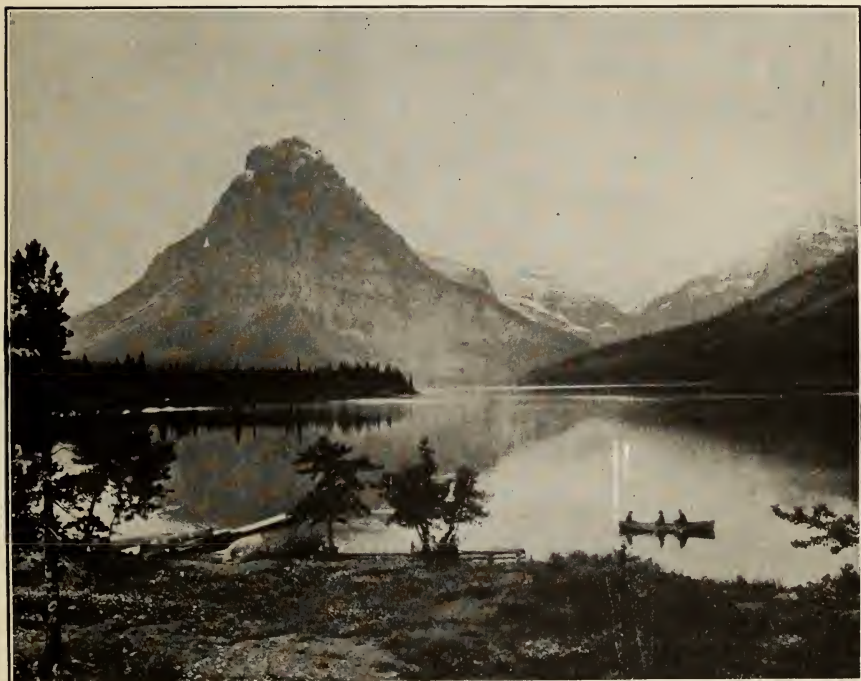
A ROMANCE OF GEOLOGY

How Nature made this remarkable spot far back in the dim ages long before man is a stirring story.

Once this whole region was covered with water, but whether the water was a lake or a part of the sea no man knows. The tiny earthy particles carried in this water, just as you see mud carried in a stream after a shower, deposited themselves gradually in layers on the bottom, continually lessening the water's depth. Geologists call these layers strata after they harden into rock.

If you were in the Glacier National Park to-day you would see broad horizontal streaks of differently colored rock in the mountain masses thousands of feet above your head. These are the very strata that the waters deposited in its depths in those far-away ages.

But how did they get away up there in the air? The answer to that is the wonderful story.



Photograph by H. T. Cowling

CHARACTERISTIC POINTED MOUNTAIN IN GLACIER NATIONAL PARK
Mount Rockwell, overlooking Two Medicine Lake

According to one famous theory of creation the earth was once a great globe of gases, and it has contracted through unnumbered cycles of time to its present hard rocky self. In the times we speak of the earth was still contracting or growing smaller. Consequently its rocky crust continually kept getting too big and, like the orange you are sucking, some part of it somewhere was always bulging and giving way.

That is what must have happened where the Glacier National Park now is. The bottom of the lake or sea, under the enormous pressure against its sides and from below, gradually rose and became dry land.

Then the land at this point, probably because it was pushed hard by the contracting land masses on both sides of it, rose in long irregular wavelike masses, forming mountains. Then, when the rock could no longer stand the awful strain, it cracked and one edge was thrust upward and over the other edge and settled into its present position.

The edge that was thrust over the other was thousands of feet thick. It crumbled into peaks, precipices, and gorges.

Upon these mountains and precipices the snows and the rains of uncounted centuries have since fallen, and the ice and the waters have worn and carved them into the area of distinguished beauty that is to-day the Glacier National Park.

Think of this when you go there, and when you hear people speak of the Lewis Overthrust you will know what they mean. This range of the Rockies is called the Lewis Mountains.

SCENES OF EXQUISITE BEAUTY

To picture to yourselves this region, imagine a chain of very lofty mountains twisting about like a worm, spotted everywhere with snow fields and bearing glistening glaciers in sixty or more huge hollows.

Imagine these mountains crumbled and broken on their east sides into precipices sometimes three or four thousand feet deep and flanked everywhere by lesser peaks and tumbled mountain masses of smaller size in whose hollows lie the most beautiful lakes you have ever dreamed of.

Imagine everywhere mountain gorges of the utmost wildness. Imagine rushing rivers and waterfalls. Imagine valleys clothed with pines right up to timber line where trees can not grow because it is too high and in winter too cold and windy.

Imagine what all this looks like in summer, and then some summer go there yourself and you will find that you did not imagine even a small part of its real beauty.

Down from the Continental Divide descend nineteen principal valleys, seven on the east side and twelve on the west. Of course there are very many smaller valleys tributary to each of these larger

valleys. Through these valleys run the rivers from the glaciers far up on the mountains.

PURCHASED FROM THE INDIANS

Many of these valleys have not yet been thoroughly explored. It is probable that some of them have never been even entered except by Indians, for there are Indians still living during the summers in the Glacier National Park. The great Blackfeet Indian Reservation, one of the many tracts of land set apart for the Indians still remaining in this country, adjoins the Glacier National Park on the east. Northward the park adjoins the Waterton Lakes Park in Canada.

There are 250 known lakes. Probably there are small ones in the wilder parts which white men have not yet even seen.

This region was not visited by white men till 1853, when a Government engineer, exploring for a route to the Pacific Ocean, ascended one of the creeks by mistake and returned when he found that no railroad could be built there. The next explorers were engineers who went in to establish the Canadian boundary line in 1861.

In 1890 copper was found at the head of Quartz Creek, and there was a rush of prospectors. In 1896 Congress bought the land east of the Continental Divide from the Blackfeet Indians, but not enough copper was found to pay for the mining. Since then few persons went there but big game hunters till 1910, when it was made a national park.

There are now several very fine hotels and several camps on the east side. The west side is wonderfully beautiful, too, and hotels and camps are found there also.

There are a few good roads for automobiles and trails for walking and horseback riding. A railroad touches its southern boundary.

IX

THE ROCKY MOUNTAIN NATIONAL PARK

Special Characteristic: Readable Records of Glacial Period

THE Rocky Mountain National Park is in Colorado, about seventy miles by road or rail northwest of Denver. Find Longs Peak on a good map and you will have the center of the 360 square miles of snow-topped mountains which constitute the park.

These mountains are part of the Continental Divide, which is the name given to the irregular line of highest land running north and south through North America which divides the waters flowing eastward into the Atlantic Ocean from those flowing westward into the Pacific. For this reason the people of Colorado call their mountains the top of the world. They are scarcely that, for the Himalaya



Photograph by Enos Mills

LOOKING INTO THE ROCKY MOUNTAIN NATIONAL PARK FROM ESTES PARK

The long irregular hills in front of the mountains are one of the great glacial moraines so characteristic of this National Park

Mountains in Asia and the Andes in South America are, among others, much higher; but for the United States this picturesque figure of speech is sufficiently near the truth.

This national park is certainly very high up in the air. The summer visitors who live at the base of the great mountains, principally at the beautiful eastern gateway, a little valley town of many hotels which is called Estes Park, are 8,000 feet, or more than a mile and a half, above the level of the sea; while the mountains rise precipitously nearly a mile, and sometimes more than a mile, higher still. Longs Peak, the biggest of them all, rises 14,255 feet above sea level, and most of the other mountains in the snowy range, as it is sometimes called, are more than 12,000 feet high; several are nearly as high as Longs Peak.

AT TIMBER LINE

The valleys on both sides of this range and those which penetrate into its recesses are dotted with lovely parklike glades clothed in a profusion of glowing wild flowers and watered with cold streams from the mountain snows and glaciers. Forests of pine and silver-stemmed aspen separate them. Timber line is more than 11,000 feet above sea level, and up to that point the slopes are covered thick and close with spruce and fir, growing very straight and very tall.

Just at timber line, where the winter temperature and the fierce icy winds make it impossible for trees to grow tall, the spruces lie flat on the ground like vines, and presently give place to low birches which in their turn give place to small piney growths and finally to tough straggling grass, hardy mosses, and tiny Alpine flowers. Grass grows in sheltered spots even on the highest peaks, which is fortunate for the large curve-horned mountain sheep which seek these high open places to escape their special enemies, the mountain lions.

Even at the highest altitudes gorgeously colored wild flowers grow in glory and profusion in sheltered gorges. Even in late September large and beautiful columbines are found in the lee of protecting masses of snow banks and glaciers.

Nowhere else are the timber-line struggles between the trees and the winds more grotesquely exemplified and more easily accessible to tourists of average climbing ability. The first sight of luxuriant Engelmann spruces creeping closely upon the ground instead of rising a hundred and fifty feet or more straight and true as masts arouses keenest interest. Many trees which defy the winter gales grow bent in half circles. Others starting straight in shelter of some large rock bend at right angles where they emerge above the rock. Others which have succeeded in lifting their heads in spite of the winds have not succeeded in growing branches in any direction except in the lee of their trunks, and suggest big evergreen dust brushes rather than spruces and firs.

Still others which have fought the winters' gales for years are twisted and gnarled beyond description—like dwarfs and gnomes of an arboreal fairyland. Still others growing in thick groups have found strength in union and form low stunted groves covered with thick roofs of matted branches bent over by the winds and so intertwined that one can scarcely see daylight overhead—excellent shelter for man or animal overtaken by mountain-top storms.

These familiar sights of timber line are wonderfully picturesque and interesting. They never lose their charm, however often seen.

Above timber line the bare mountain masses rise from 1,000 to 3,000 feet, often in sheer precipices. Covered with snow in fall, winter, and spring, and plentifully spattered with snow all summer long, the vast, bare granite masses, from which, in fact, the Rocky Mountains got their name, are beautiful beyond description. They are rosy at sunrise and sunset. During fair and sunny days they show all shades of translucent grays and mauves and blues. In some lights they are almost fairylike in their exquisite delicacy. But on stormy days they are cold and dark and forbidding, burying their heads in gloomy clouds, from which sometimes they emerge covered with snow.

Often one can see a thunderstorm born on the square granite head of Longs Peak. First, out of the blue sky a slight mist seems to gather. In a few moments, while you watch, it becomes a tiny cloud. This grows with great rapidity. In five minutes, perhaps, the mountain top is hidden. Then, out of nothing apparently, the cloud swells and sweeps over the sky. Sometimes in fifteen minutes after the first tiny fleck of mist appears it is raining in the valley and possibly snowing on the mountain. In half an hour more it has cleared.

Standing on the summits of these mountains the climber is often enveloped in these brief-lived clouds. It is an impressive experience to look down upon the top of an ocean of cloud from which the greater peaks emerge at intervals. Sometimes the sun is shining on the observer upon the heights while it is raining in the valleys below. It is startling to see lighting below you.

ACCESSIBILITY

One of the striking features of the Rocky Mountain National Park is the easy accessibility of these mountain tops. One may mount a horse after early breakfast in the valley, ride up Flattop to enjoy one of the great views of the world, and be back for late luncheon. The hardy foot traveler may make better time than the horse on these mountain trails. One may cross the Continental Divide from the hotels of one side to the hotels of the other between early breakfast and late dinner.

In fact, for all-around accessibility there surely is no high mountain resort of the first order that will quite compare with the Rocky Mountain National Park. Three railroads to Denver skirts its sides, and Denver is less than thirty hours from St. Louis and Chicago.

ROCKY MOUNTAIN SHEEP

This range was once a famous hunting ground for large game. Lord Dunraven, the English sportsman, visited it yearly to shoot its deer, bear, and bighorn sheep, and once he tried to buy it for a private game preserve. Now that the Government has made it a national park, the protection offered its wild animals will make it in a few years one of the most successful wild-animal refuges in the world.

These lofty rocks are the natural home of the celebrated Rocky Mountain sheep, or bighorn. This animal is much larger than any domestic sheep. It is powerful and wonderfully agile. When pursued these sheep, even the lambs, unhesitatingly drop head downward off precipitous cliffs sometimes many hundreds of feet high. Of course, they strike friendly ledges every few feet to break the fall, but these ledges often are not wide enough to stand upon; they are mere rocky excrescences a foot or less in width, from which the sheep

plunge to the next and the next, and so on till they reach good footing in the valley below. So swift is the descent that, seen from below at a distance, these pauses are often scarcely apparent.

The fact that the sheep always plunge head first has given rise to the fable that they land on their curved horns. This is absolutely untrue; they always strike ledges with all four feet held close together. They also ascend slopes surprisingly steep.

They are more agile even than the celebrated chamois of the Swiss Alps, and are larger, more powerful, and much handsomer. It is something not to be forgotten to see a flock of a



Photograph by G. Swanson

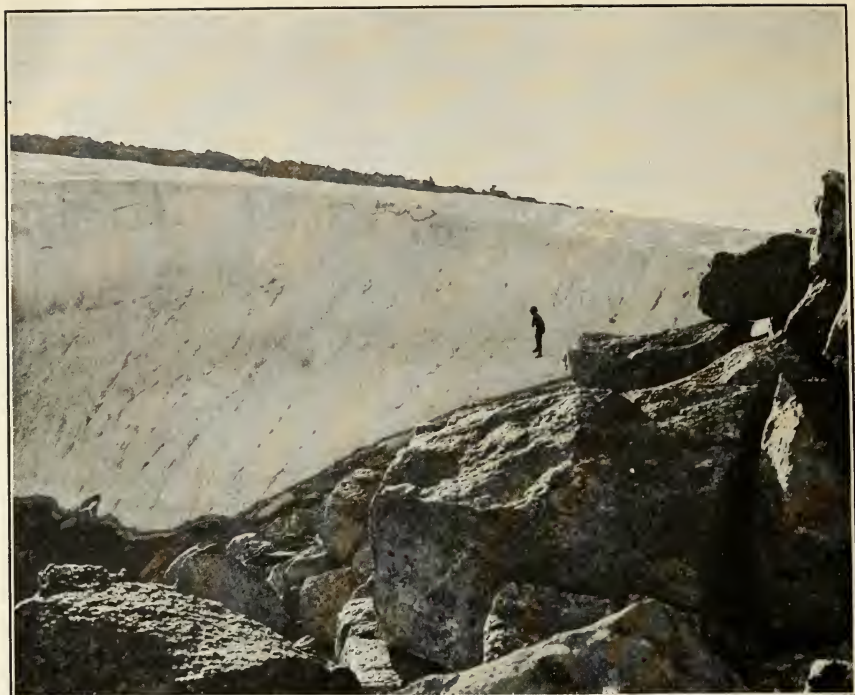
ROCKY MOUNTAIN SHEEP, OR BIGHORN

dozen or twenty mountain sheep making their way along the blown-out volcanic crater of Specimen Mountain in the Rocky Mountain National Park.

LONGS PEAK AND THE GLACIER RECORDS

The prominent central feature of the Rocky Mountain National Park is Longs Peak. It rears a square-cornered boxlike head well above the tumbled sea of surrounding mountain tops. It has, unlike most great mountains, a distinct architectural form. Standing well to the east of the range at about its center, it suggests the captain of a white-helmeted company; the giant leader of a giant band. It is supported on four sides by mountain buttresses, suggesting the stone buttresses of a central cathedral spire. From every side it looks the same, yet remarkably different. One does not know Longs Peak until he has seen it from every side, and then it becomes to him not a mountain mass but an architectural creation.

For many years Longs Peak was considered unclimbable. But at last a way was found through an opening in perpendicular rocks called, from its shape, the Keyhole, out upon a steep slope leading from near its summit far down to a precipice upon its west side. The east side of Longs Peak is a nearly sheer precipice almost 2,000 feet from the extreme top down to Chasm Lake, which was the start-



Photograph by H. T. Cowling

TOP OF TYNDALL GLACIER, ROCKY MOUNTAIN NATIONAL PARK

On the summit of Flattop Mountain, nearly 13,000 feet altitude

ing point of a gigantic glacier in times long before man. Chasm Lake, which is not difficult to reach from the valley, is one of the wildest lakes in nature. It is frozen eleven months of the year.

There is no other region in America where glacial records of such prominence are more numerous and more easily reached and studied as in the Rocky Mountain National Park. The whole country has been fantastically cut and carved by gigantic glaciers of the prehistoric past. Their ancient beds, now grown with forests, their huge moraines, their cirques, or starting places, are, next to the vast mountains themselves, the most prominent features of the region.

In fact, these records of the period when this continent was planed and carved by the ice are so clearly, so simply written in the rocks of this region that the whole story lies plain to the most casual eye.

X

GRAND CANYON OF THE COLORADO RIVER

(National Monument Administered by the Department of Agriculture)

THE rain falling in the plowed field forms rivulets in the furrows. The rivulets unite in a muddy torrent in the roadside gutter. With succeeding showers the gutter wears an ever-deepen-

ing channel in the soft soil. With the passing season the gutter becomes a gully. Here and there, in places, its banks undermine and fall in. Here and there the rivulets from the field wear tiny tributary gullies. Between the breaks in the banks and the tributaries, irregular masses of earth remain standing, sometimes resembling mimic cliffs, sometimes washed and worn into mimic peaks and spires.

Such roadside erosion is familiar to us all. A hundred times we have idly noted the fantastic water-carved walls and minaretted slopes of these ditches. But seldom, perhaps, have we realized that the muddy roadside ditch and the world famous Grand Canyon of the Colorado are, from Nature's standpoint, identical; that they differ only in soil and size.

The arid States of our great Southwest constitute an enormous plateau or table-land from four to eight thousand feet above sea level. It is plateau of sun-baked conglomerate and loose soils from which emerge occasional mountain masses of more or less solid rock. Rain seldom falls, but in winter the snows lie heavy in the mountains. In the spring the snows melt and torrents of water wear temporary beds in the loose soils. Rivers are few and small. Some lose themselves in the drying sands. Others gather into a few desert water systems. The largest of these is that which, in its lower courses, bears the name of the Colorado River.

In ages before history the Colorado River probably flowed upon the surface of this lofty table-land. But, like the roadside ditch, it gradually wore an ever-deepening channel. In time, as with the roadside ditch, the banks caved in and the current carried the soil away. Seismic disturbances may have helped. The ever busy chisels of the untiring winds have carved and polished through untold centuries.

AN UNPARALLELED SPECTACLE

To-day the Colorado flows through a series of self-dug canyons hundreds of miles long, a mile deep, and in some places a score of miles across the top. The sides of these canyons are carved and fretted beyond description, almost beyond belief; and the strata of rock and soil exposed by the river's excavations are marvelously colored. The blues and grays and mauves and reds are second in glory only to the canyon's size and sculpture. The colors change with every changing hour. The morning and the evening shadows play magician's tricks.

That portion of the canyon which affords the finest spectacle has been set aside by Congress as a national monument. It is situated in northeastern Arizona and is called the Grand Canyon of the Colorado. It constitutes one of the most astonishing phenomena in nature and one of the stupendous sights of the world.

The Colorado River is formed, in southern Utah, by the confluence of the Grand and the Green Rivers. The Grand drains the western Rockies in Colorado. The Green rises in northern Utah, and drains also a corner of Wyoming. Together they gather the waters of three hundred thousand square miles of mountains. "Ten million cascade brooks," write J. W. Powell, "unite to form a hundred rivers beset with cataracts; a hundred roaring rivers unite to form the Colorado, a mad, turbid stream."

Southwest from Utah, the Colorado passes into Arizona through the noble Marble Canyon and swings west between the mile-high walls of the mighty Grand Canyon. Thence, emerging into more open country, it skirts Nevada and California, cuts through Mexico and deposits its vast burden of mud in the Gulf of California.

MOSAIC OF DESCRIPTION

Who can describe the Grand Canyon?

"More mysterious in its depth than the Himalayas in their height," writes John C. Van Dyke, "the Grand Canyon remains not the eighth but the *first* wonder of the world. There is nothing like it."

"Looking down more than half a mile into this fifteen-by-two-hundred-and-eighteen-mile paint pot," writes Joaquin Miller, "I continually ask: Is any fifty miles of Mother Earth that I have known as fearful, or any part as fearful, as full of glory, as full of God?"

"To the eye educated to any other," writes Charles Dudley Warner, "it may be shocking, grotesque, incomprehensible; but those who have long and carefully studied the Grand Canyon do not hesitate to pronounce it by far the most sublime of all earthly spectacles."

"The Grand Canyon of Arizona fills me with awe," writes Theodore Roosevelt. "It is beyond comparison—beyond description; absolutely unparalleled throughout the wide world."

"A pageant of ghastly desolation and yet of frightful vitality, such as neither Dante nor Milton in their most sublime conceptions ever even approached," writes William Winter. "Your heart is moved with feeling that is far too deep for words."

"It has a thousand differing moods," writes Hamlin Garland. "No one can know it for what it is who has not lived with it every day of the year. It is like a mountain range—a cloud to-day, a wall of marble to-morrow. When the light falls into it, harsh, direct, and searching, it is great, but not beautiful. The lines are chaotic, disturbing—but wait! The clouds and the sunset, the moonrise and the storm will transform it into a splendor no mountain range can surpass. Peaks will shift and glow, walls darken, crags take fire, and gray-green mesas, dimly seen, take on the gleam of opalescent lakes of mountain water."

"It seems a gigantic statement for even Nature to make all in one mighty stone word," writes John Muir. "Wildness so Godful, cosmic, primeval, bestows a new sense of earth's beauty and size. * * * But the *colors*, the living, rejoicing *colors*, chanting, morning and evening, in chorus to heaven! Whose brush or pencil, however lovingly inspired, can give us these? In the supreme flaming glory of sunset the whole canyon is transfigured, as if all the life and light of centuries of sunshine stored up in the rocks was now being poured forth as from one glorious fountain, flooding both earth and sky."

DIFFICULT TO COMPREHEND

Even the most superficial description of this enormous spectacle may not be put in words. The wanderer upon the rim overlooks a thousand square miles of pyramids and minarets carved from the painted depths. Many miles away and more than a mile below the level of his feet he sees a tiny silver thread which he knows is the giant Colorado. He is numbed by the spectacle. At first he can not comprehend it. There is no measure, nothing which the eye can grasp, the mind fathom.

It may be hours before he can even slightly adjust himself to the titanic spectacle, before it ceases to be utter chaos, and not until then does he begin to exclaim in rapture. And he never wholly adjusts himself, for with dawning appreciation comes growing wonder. Comprehension lies always just beyond his reach. But it will help to descend one of these trails which zigzag down the precipitous cliffs to the river's muddy edge.

The Grand Canyon was first reported to the civilized world by the early Spanish explorers in 1540. It was first described in 1851 by the Sitgreaves Expedition. The War Department explored the navigable waters from the south in 1858, but stopped at the foot of the canyons.

MAJOR POWELL'S FIRST EXPLORATION

No exploration of the Grand Canyon was made until 1869, when Major J. W. Powell, who afterwards became Director of the United States Geological Survey, made a perilous passage with a party of nine men in four small boats. This exploration constitutes one of the most romantic adventures in American history. Until then it was unknown.

"Yet enough had been seen to foment rumor," Major Powell wrote in his report to the Smithsonian Institution, "and many wonderful stories have been told in the hunter's cabin and prospector's camp. Stories were related of parties entering the gorge in boats and being carried down with fearful velocity into whirlpools, where all were overwhelmed in the abyss of waters; others, of underground passages

for the great river, into which boats had passed never to be seen again. It was currently believed that the river was lost under the rocks for several hundred miles. There were other accounts of great falls whose roaring music could be heard on distant mountain summits."

The passage, while it developed none of these reported dangers, was sufficiently perilous. Boats were repeatedly upset in the rapids, food was nearly exhausted, and the adventurers many times barely escaped destruction. Four men who deserted the party, terrified, attempted to climb the walls, but were never heard from again.

The Indian legend of the Grand Canyon is picturesque. There was a great chief who mourned the death of his wife, and would not be comforted. To him came Ta-vwoats, one of the Indian gods, and told him that his wife was in a happier land to which he would take him that he might see for himself, if upon his return he would cease to mourn. The chief promised. Then Ta-vwoats made a trail through the mountains that guarded that beautiful land.

This trail was the canyon gorge of the Colorado. Through it Ta-vwoats led the chief; and when they had returned the god exacted from the chief a promise that he would tell no one of its joys lest, through discontent with the circumstances of this world, others should desire to go there. Then Ta-vwoats rolled a river into the gorge, a mad, raging stream, that should engulf any that might attempt to enter thereby. This river was the Colorado.

XI

THE HOT SPRINGS RESERVATION

Special Characteristic: Curative Hot Springs Possessing Radio-Active Properties

AS different, almost, as possible from the great scenic national parks which we have been considering, but in its own particular way as extraordinary as any of them, the Hot Springs Reservation in the Ozark Mountains of Arkansas must be accorded a distinguished place among American resorts of national character and ownership. The reservation is the oldest national park, having received that status in 1832, forty years before the wonders of the Yellowstone first inspired Congress with the idea that scenery was a national asset deserving of preservation for the use and enjoyment of succeeding generations.

No aesthetic consideration was involved in this early act of national conservation. Congress was inspired only by the undoubted, but at that time inexplicable, power of these waters to alleviate certain bodily ills. The motive was to retain these unique waters in public possession in order that they should be available to all persons for all time at a minimum, even a nominal, cost.



HOT SPRINGS RESERVATION, SHOWING BATH HOUSE ROW AND THE ARMY AND NAVY GENERAL HOSPITAL

The low, irregular mountain masses known as the Ozarks cover the greater part of southern Missouri and overlap northern Arkansas, where, in marked contrast with the surrounding plains, they become higher, more rugged, and heavily timbered.

The country is one of much beauty. Hot Springs Mountain, from whose sides flow the cleansing waters, is about fifty miles west by south from Little Rock. Here, as early as 1804, began the settlement which has developed into the handsome prosperous city of 16,000 inhabitants known as Hot Springs. It is a resort city, made wealthy from the many thousands of visitors seeking health from the adjacent Government springs and pleasure in the high and beautiful neighborhood country with its excellent drives and woodland paths, its mountain and river views, its social gayeties, and its exceptional golf.

Adjoining the borders of the city at the mountain's foot lies the reservation, a tract of 912 acres inclosing all the forty-six hot springs. Eleven bathhouses are in the reservation and a dozen more in the city, all under Government regulation. There are also cold-water springs of curative value. In the city are many hotels and boarding houses with rates ranging from lowest to highest. The Department of the Interior has spent altogether more than a million dollars on the development of the reservation. The reservation contains, also, an Army and Navy Hospital.

Dr. William P. Parks, superintendent of the reservation, states in his annual report for 1915 that while the baths are constantly given for such ailments as seem to be benefited in the experience of physicians who have prescribed their use and carefully observed the results, there are still many physicians throughout the country who, never having themselves tested the springs, hesitate to send patients there.

"No physician who is thorough and looks for the best results from the medicines he gives," says Dr. Parks, "would think of prescribing a drug whose physiological effects and therapeutic value had not been scientifically proven and described."

A perfect explanation, this, of a natural scientific conservatism.

The War Department's years of experience in the Army and Navy Hospital, however, is thoroughly convincing, and the medical staff officially affirm the waters' marked curative value for rheumatic and many grave ailments more or less kindred.

Recently the Department of the Interior has established on the reservation the Oertel system of graduated exercise which has proved so successful at the celebrated springs of Bad Nauheim, Germany. Courses have been laid out on the mountain slopes with distances scientifically established and plainly marked by monuments. The length and character of the walks are determined by physicians according to the condition and progress of the patient.

INTERESTING INDIAN TRADITIONS

Tradition has it that the curative properties of the hot springs were known to the Indians long before the Spanish invasion. It is probable that they were known to De Soto, who died in 1542 less than a hundred miles away. It is tradition that Indian tribes warred for their possession but that finally a truce was made which enabled all tribes to avail alike of their waters.

Government analyses of the waters disclose more than twenty chemical constituents, but it is not these nor their combination to which is principally attributed the water's unquestioned virtue in many diseased conditions, but to their remarkable radioactivity. The Department of the Interior will send full information to inquirers.

